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School of Engineering
Department of Electrical Engineering
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Education

- 03/2000–11/2003 **Ph.D. in Computer Science**
Motion Planning and Control of Cooperating Mobile Robots: A Graph Connectivity Approach.
Advisors: Mario Fernando Montenegro Campos and Vijay Kumar.
Federal University of Minas Gerais (UFMG), Brazil with collaborative period at the University of Pennsylvania (UPENN), USA.
- 11/1998–02/2000 **M.Sc. in Electrical Engineering**
Identification and Control of Micro Mobile Robots.
Supervisor: Mario Fernando Montenegro Campos.
Federal University of Minas Gerais (UFMG), Brazil.
- 08/1993–10/1998 **B.Sc. in Electrical Engineering**
Graduation project: Design and Development of an Autonomous Vehicle.
Supervisor: Walmir Matos Caminhas.
Federal University of Minas Gerais (UFMG), Brazil.
- 02/1990–12/1992 **Electronics Technician**
Federal Center for Technical Education of Minas Gerais (CEFET-MG), Brazil.

Professional Experience

- 07/2004–present **Associate Professor** – School of Engineering, Department of Electrical Engineering, Federal University of Minas Gerais (UFMG), Brazil. <http://www.ufmg.br> – UFMG has been ranked as one of the two best universities in Brazil in the areas of Electrical Engineering and Computer Science according to the Brazilian Agency CAPES.
- 10/2004–present **Director** – Computer Systems and Robotics Laboratory (CORO), School of Engineering, Department of Electrical Engineering, Federal University of Minas Gerais (UFMG), Brazil. <http://coro.cpdee.ufmg.br>
- 08/2015–07/2016 **Visiting Scholar** – Field Robotics Center, Robotics Institute, Carnegie Mellon University (CMU), USA.
- 07/2011–07/2014 **Deputy Coordinator** – Graduate Program in Electrical Engineering (PPGEE), School of Engineering, Federal University of Minas Gerais (UFMG), Brazil. <http://www.ppgEE.ufmg.br>
- 12/2007–05/2008 **Coordinator** – Undergraduate Program in Control and Automation Engineering, School of Engineering, Federal University of Minas Gerais (UFMG), Brazil.
- 05/2006–12/2007 **Deputy Coordinator** – Undergraduate Program in Control and Automation Engineering, School of Engineering, Federal University of Minas Gerais (UFMG), Brazil.
- 08/2003–06/2004 **Assistant Professor** – Pontifical Catholic University of Minas Gerais (PUC Minas), Brazil.
- 10/2001–04/2003 **Visiting Scholar** – General Robotics Automation Sensing and Perception Laboratory (GRASP Lab.), School of Engineering and Applied Science, University of Pennsylvania (UPENN), USA.

Professional Affiliations

- SENIOR MEMBER **IEEE – Institute of Electrical and Electronics Engineers.**
- Vice-chair of the Robotics and Automation Society Brazilian Chapter (2016–2017).
 - Chair of the Robotics and Automation Society Brazilian Chapter (2015).
 - Memberships
 - Robotics and Automation Society.
 - Intelligent Transportation Systems Society.
 - Control Systems Society.
- MEMBER **SBA – Brazilian Society for Automatics.**
- Coordinator of the Robotics Technical Committee (2013–2014).

Awards/Honors

- 2016–2018 Research Productivity Scholarship, National Council for Scientific and Technological Development (CNPq), Brazil.
- 2014 **The Advanced Robotics Best Paper Award**, The Robotics Society of Japan (RSJ).
- 2013–2015 Research Productivity Scholarship, National Council for Scientific and Technological Development (CNPq), Brazil.
- 2010–2012 Research Productivity Scholarship, National Council for Scientific and Technological Development (CNPq), Brazil.
- 2009 One of four finalists for **The Student Best Paper Award** of The 2009 American Control Conference (ACC'09), The American Automatic Control Council - AACC.
- 2007–2009 Research Productivity Scholarship, National Council for Scientific and Technological Development (CNPq), Brazil.
- 2006 **The Best Poster Award** of the 12th Biennial IEEE Conference on Electromagnetic Field Computation (CEFC'06), The Institute of Electrical and Electronics Engineers - IEEE.
- 2004 One of three finalists for **The Best Conference Paper Award** of the Design Engineering Technical Conferences 2004, The American Society of Mechanical Engineers - ASME.
- 1998 **Gold Medal Award** for gathering the first place among the electrical engineer students in 1998, School of Engineering, Federal University of Minas Gerais, Brazil.

List of Selected Publications

For a more complete list of publications see:

CNPq-Brazil: <http://lattes.cnpq.br/1726523803257092>

ResearcherID: <http://www.researcherid.com/rid/E-5773-2010>

Google Scholar: <http://scholar.google.ca/citations?user=gd8q19oAAAAJ>

Peer-reviewed journals

1. R. J. Alitappeh, **G. A. S. Pereira**, A. R. Araújo L. C. A. Pimenta, “Multi-robot Deployment using Topological Maps,” *Journal of Intelligent & Robotic Systems*, vol 86, issue 3, pp. 641–661, June 2017. DOI: [10.1007/s10846-017-0471-3](https://doi.org/10.1007/s10846-017-0471-3)
2. G. S. C. Avellar, **G. A. S. Pereira**, L. C. A. Pimenta, and P. Iscold, “Multi-UAV Routing for Area Coverage and Remote Sensing with Minimum Time,” *Sensors*, vol 15, pp. 27783–27803, 2015. DOI: [10.3390/s151127783](https://doi.org/10.3390/s151127783)
3. N. C. Batista and **G. A. S. Pereira**, “A Probabilistic Approach for Fusing People Detectors,” *Journal of Control, Automation and Electrical Systems*, vol 26, pp. 616–629, 2015. DOI: [10.1007/s40313-015-0202-6](https://doi.org/10.1007/s40313-015-0202-6)
4. J. E. A. Dias, **G. A. S. Pereira**, and R. M. Palhares, “Longitudinal model identification and velocity control of an autonomous car,” *IEEE Transactions on Intelligent Transportation Systems*, vol. 16, no. 2 pp. 776–786, April 2015. DOI: [10.1109/TITS.2014.2341491](https://doi.org/10.1109/TITS.2014.2341491)

5. D. N. Brito, F. L. C. Pádua, and **G. A. S. Pereira**, “Temporal synchronization in mobile sensor networks using image sequence analysis,” *Machine Vision and Applications*, vol. 25, no. 4, pp. 1067–1076, May 2014. DOI: [10.1007/s00138-014-0605-6](https://doi.org/10.1007/s00138-014-0605-6)
6. L. C. A. Pimenta, **G. A. S. Pereira**, M. M. Gonçalves, N. Michael, M. Turpin, and V. Kumar, “Decentralized controllers for perimeter surveillance with teams of aerial robots,” *Advanced Robotics*, vol. 27, pp. 697–709, 2013. (This paper won **The Advanced Robotics Best Paper Award 2014**.) DOI: [10.1080/01691864.2013.778942](https://doi.org/10.1080/01691864.2013.778942)
7. L. C. A. Pimenta, **G. A. S. Pereira**, N. Michael, R. C. Mesquita, M. M. Bosque, L. Chaimowicz, and V. Kumar, “Swarm coordination based on smoothed particle hydrodynamics technique,” *IEEE Transactions on Robotics*, vol. 29, no. 2, pp. 383–399, April 2013. DOI: [10.1109/TRO.2012.2234294](https://doi.org/10.1109/TRO.2012.2234294)
8. D. A. Lima and **G. A. S. Pereira**, “Navigation of an autonomous car using vector fields and the dynamic window approach,” *Journal of Control, Automation and Electrical Systems*, vol. 24, no. 1-2, pp. 106–116, April 2013. DOI: [10.1007/s40313-013-0006-5](https://doi.org/10.1007/s40313-013-0006-5)
9. D. N. Brito, F. L. C. Pádua, **G. A. S. Pereira**, and R. L. Carceroni, “Temporal synchronization of non-overlapping videos using known object motion,” *Pattern Recognition Letters*, vol. 32, no. 1, pp. 38–46, January 2011. DOI: [10.1016/j.patrec.2010.02.011](https://doi.org/10.1016/j.patrec.2010.02.011)
10. M. A. G. Moreira, **G. A. S. Pereira**, L. A. B. Torres, and P. Iscold, “Localization, modelling, and control of a mini-helicopter in indoor environments,” *Controle & Automação*, vol. 22, no. 3, pp. 238–255, May/June 2011. DOI: [10.1590/S0103-17592011000300003](https://doi.org/10.1590/S0103-17592011000300003)
11. P. Iscold, **G. A. S. Pereira**, and L. A. B. Torres, “The development of a hand-launched small UAV for ground reconnaissance,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 46, no. 1, pp. 335–348, January 2010. DOI: [10.1109/TAES.2010.5417166](https://doi.org/10.1109/TAES.2010.5417166)
12. V. M. Gonçalves, L. C. A. Pimenta, C. A. Maia, B. C. O. Dutra, and **G. A. S. Pereira**, “Vector fields for robot navigation along time-varying curves in n-dimensions,” *IEEE Transactions on Robotics*, vol. 26, no. 4, pp. 647–659, August 2010. DOI: [10.1109/TRO.2010.2053077](https://doi.org/10.1109/TRO.2010.2053077)
13. V. M. Gonçalves, L. C. A. Pimenta, C. A. Maia, and **G. A. S. Pereira**, “Robot navigation using implicit curves,” *Controle & Automação*, vol. 21, no. 1, pp. 43–57, January/February 2010. DOI: [10.1590/S0103-17592010000100004](https://doi.org/10.1590/S0103-17592010000100004)
14. **G. A. S. Pereira**, L. C. A. Pimenta, L. Chaimowicz, A. R. Fonseca, D. S. C. Almeida, L. Q. Corrêa, R. C. Mesquita, and M. F. M. Campos, “Robot navigation in multi-terrain outdoor environments,” *The International Journal of Robotics Research*, vol. 28, no. 6, pp. 685–700, June 2009. DOI: [10.1177/0278364908097578](https://doi.org/10.1177/0278364908097578)
15. **G. A. S. Pereira**, V. Kumar, and M. F. M. Campos, “Closed loop motion planning of cooperating mobile robots using graph connectivity,” *Robotics and Autonomous Systems*, vol. 56, no. 4, pp. 373–384, April 2008. DOI: [10.1016/j.robot.2007.08.003](https://doi.org/10.1016/j.robot.2007.08.003)
16. **G. A. S. Pereira**, P. Iscold, and L. A. B. Torres, “Airplane attitude estimation using computer vision: simple method and actual experiments,” *Electronics Letters*, vol. 44, no. 22, pp. 1303–1305, October 2008. DOI: [10.1049/el:20081184](https://doi.org/10.1049/el:20081184)
17. D. A. P. Nagem, M. A. G. Moreira, **G. A. S. Pereira**, C. J. Tierra-Criollo, M. B. Pinotti, “Development of the relations for the interphalange and metacharpo-phalange during grasp movement,” *Matéria*, vol. 12, pp. 179–185, 2007. DOI: [10.1590/S1517-70762007000100023](https://doi.org/10.1590/S1517-70762007000100023)
18. L. C. A. Pimenta, M. L. Mendes, R. C. Mesquita, and **G. A. S. Pereira**, “Fluids in electrostatic fields: An analogy for multi-robot control,” *IEEE Transactions on Magnetics*, vol. 43, no. 4, pp. 1765–1768, April 2007. DOI: [10.1109/TMAG.2007.892514](https://doi.org/10.1109/TMAG.2007.892514)
19. **G. A. S. Pereira**, M. F. M. Campos, and L. A. Aguirre, “Data-based dynamical modeling of externally observed actuators-only robots,” *IEEE Transactions on System, Man, and Cybernetics - Part A*, vol. 36, no. 4, pp. 706–717, July 2006. DOI: [10.1109/tsmca.2005.854372](https://doi.org/10.1109/tsmca.2005.854372)
20. L. C. A. Pimenta, A. R. Fonseca, **G. A. S. Pereira**, R. C. Mesquita, E. J. Silva, W. M. Caminhas, and M. F. M. Campos, “Robot navigation based on electrostatic field computation,” *IEEE Transactions on Magnetics*, vol. 42, no. 4, pp. 1459–1462, April 2006. DOI: [10.1109/TMAG.2006.870931](https://doi.org/10.1109/TMAG.2006.870931)
21. F. Zhang, **G. A. S. Pereira**, and V. Kumar, “Cooperative localization and tracking in distributed robot-sensor networks,” *Tsinghua Science and Technology*, vol. 10, no. 1, pp. 91–101, Feb. 2005. DOI: [10.1016/S1007-0214\(05\)70014-6](https://doi.org/10.1016/S1007-0214(05)70014-6)
22. **G. A. S. Pereira**, V. Kumar, and M. F. M. Campos, “Decentralized algorithms for multi-robot manipulation via caging,” *The International Journal of Robotics Research*, vol. 23, no. 7, pp. 783–795, July 2004. DOI: [10.1177/0278364904045477](https://doi.org/10.1177/0278364904045477)

23. M. F. M. Campos, **G. A. S. Pereira**, S. R. C. Vale, A. Q. Bracarense, G. A. Pinheiro, and M. P. Oliveira, “A robot for installation and removal of aircraft warning spheres on aerial power transmission lines,” *IEEE Transactions on Power Delivery*, vol. 18, no. 4, pp. 1581–1582, October 2003. DOI: [10.1109/TPWRD.2003.817538](https://doi.org/10.1109/TPWRD.2003.817538)

Book chapters

1. L. Chaimowicz, **G. A. S. Pereira**, M. F. M. Campos, “Robótica Cooperativa,” in *Robótica Móvel*, R. A. F. Romero, E. Prestes, F. Osório, and D. F. Wolf. Eds. Rio de Janeiro: LTC - Livros Técnicos e Científicos Editora Ltda., 2014, vol. 1, pp. 242–255.
2. L. C. A. Pimenta, M. Schwager, Q. Lindsey, V. Kumar, D. Rus, R. C. Mesquita, and **G. A. S. Pereira**, “Simultaneous coverage and tracking (SCAT) of moving target with robot networks,” in *Algorithmic Foundations of Robotics VIII - Selected Contributions of the Eighth International Workshop on the Algorithmic Foundations of Robotics*, 1st ed., G. S. Chirikjian, H. Choset, M. Morales, and T. Murphey, Eds. Springer-Verlag, 2010, vol. 57, pp. 85–99.
3. **G. A. S. Pereira**, L. C. A. Pimenta, L. Chaimowicz, A. R. Fonseca, D. S. C. de Almeida, L. de Q. Corrêa, R. C. Mesquita, and M. F. M. Campos, “Robot navigation in multi-terrain outdoor environments,” in *Experimental Robotics: The 10th International Symposium on Experimental Robotics*, ser. STAR - Springer Tracts on Advanced Robotics, O. Khatib, V. Kumar, and D. Rus, Eds. Springer-Verlag, 2008, vol. 39, pp. 331–342.
4. **G. A. S. Pereira** and L. Chaimowicz, “Robôs móveis,” in *Enciclopédia de Automática: Controle e Automação*, L. A. Aguirre, A. P. A. da Silva, M. F. M. Campos, and W. C. do Amaral, Eds. São Paulo: Editora Blucher, 2007, vol. 3, pp. 369–386.
5. A. R. Fonseca, L. C. A. Pimenta, R. C. Mesquita, R. R. Saldanha, and **G. A. S. Pereira**, “Path planning for mobile robots operating in outdoor environments using map overlay and triangular decomposition,” in *ABCN Symposium Series in Mechatronics*. Ouro Preto, Brasil: Associação Brasileira de Engenharia e Ciências Mecânicas, Novembro 2006, vol. 2, pp. 218–225.
6. G. Kantor, S. Singh, R. Peterson, D. Rus, A. K. Das, V. Kumar, **G. A. S. Pereira**, and J. Spletzer, “Distributed search and rescue with robot and sensor teams,” in *Field and Service Robotics: Recent Advances in Research and Applications*, ser. STAR - Springer Tracts on Advanced Robotics, H. Asama, S. Yuta, S. Thrun, and E. Prassler, Eds. Springer-Verlag, 2006, vol. 24, pp. 529–538.
7. C. Belta, **G. A. S. Pereira**, and V. Kumar, “Abstraction and control for swarms of robots,” in *Robotics Research*, ser. STAR, P. Dario and R. Chatila, Eds. Springer-Verlag, 2005, pp. 224–233.
8. **G. A. S. Pereira**, V. Kumar, and M. F. M. Campos, “Decentralized algorithms for multirobot manipulation via caging,” in *Algorithmic Foundations of Robotics V*, ser. STAR, J. D. Boissonnat, J. Burdick, K. Goldberg, and S. Hutchinson, Eds. Heidelberg: Springer-Verlag, 2004, pp. 257–273.
9. **G. A. S. Pereira**, A. Das, V. Kumar, and M. F. M. Campos, “Decentralized motion planning for multiple robots subject to sensing and communication constraints,” in *Multi-Robot Systems: From Swarms to Intelligent Automata, Volume II*, A. Schultz, L. E. Parker, and F. Schneider, Eds. Kluwer Academic Press, 2003, pp. 267–278.
10. **G. A. S. Pereira**, V. Kumar, J. Spletzer, C. J. Taylor, and M. F. M. Campos, “Cooperative transport of planar objects by multiple mobile robots using object closure,” in *Experimental Robotics VIII*, ser. STAR, B. Siciliano and P. Dario, Eds. Heidelberg: Springer-Verlag, 2003, pp. 275–284.
11. M. F. M. Campos, A. Q. Bracarense, **G. A. S. Pereira**, G. A. Pinheiro, M. P. Oliveira, and S. R. C. Vale, “Robotized installation of signaling aerial spheres in transmission lines cables,” in *Intelligent Assembly and Disassembly 2001*, P. Kopacek, C. E. Pereira, and D. Noe, Eds. Elsevier Science Ltd, 2002, pp. 91–100.

Peer-reviewed international conferences

1. **G. A. S. Pereira**, S. Choudhury, and S. Scherer, “A framework for optimal repairing of vector field-based motion plans,” in *Proceedings of the International Conference on Unmanned Aircraft Systems (ICUAS'16)*, Arlington, June 2016, pp. 405–446.
2. A. R. Araújo, D. D. Caminhas, and **G. A. S. Pereira**, “An architecture for navigation of service robots in human-populated office-like environments,” In *Proceedings of the 11th IFAC Symposium on Robot Control (SYROCO'15)*, Salvador, August 2015, p. 1–6.

3. V. M. Gonçalves, L. C. A. Pimenta, C. A. Maia, and **G. A. S. Pereira**, “Coordination of multiple fixed-wing uavs traversing intersecting periodic paths,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA’13)*, Karlsruhe, May 2013, pp. 841–846. (Acceptance rate: 39%)
4. G. S. C. Avellar, G. D. Thums, R. R. Lima, P. Iscold, L. A. B. Torres, and **G. A. S. Pereira**, “On the development of a small hand-held multi-uav platform for surveillance and monitoring,” in *Proceedings of the International Conference on Unmanned Aircraft Systems (ICUAS’13)*, Atlanta, May 2013, pp. 405–446.
5. M. M. Gonçalves, L. C. A. Pimenta, and **G. A. S. Pereira**, “Coverage of curves in 3D with swarms of nonholonomic aerial robots,” in *Proceedings of the IFAC World Congress*, vol. 18, 2011, pp. 10 367–10 372.
6. B. C. O. Dutra, **G. A. S. Pereira**, and F. H. Vasconcelos, “Robotic manipulators for attitude sensors calibration: the measurement model and uncertainty calculation,” in *Proceedings of the 18th Symposium IMEKO TC 4*, 2011.
7. V. M. Gonçalves, L. C. A. Pimenta, C. A. Maia, **G. A. S. Pereira**, B. C. O. Dutra, N. Michael, J. Fink, and V. Kumar, “Circulation of curves using vector fields: actual robot experiments in 2d and 3d workspaces,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA’10)*, 2010, pp. 1136–1141. (Acceptance rate: 42%)
8. V. M. Gonçalves, L. C. A. Pimenta, C. A. Maia, and **G. A. S. Pereira**, “Artificial vector fields for robot convergence and circulation of time-varying curves in n-dimensional spaces,” in *Proceedings of the American Control Conference (ACC’09)*, 2009, pp. 2012–2017. (This paper was selected as one of four finalists for the **Student Best Paper Award**.)
9. L. C. A. Pimenta, N. Michael, **G. A. S. Pereira**, R. C. Mesquita, and V. Kumar, “Control of swarms based on hydrodynamic models,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA’08)*, 2008, pp. 1948–1953. (Acceptance rate: 45%)
10. M. B. Soares, M. F. M. Campos, D. A. Dutra, V. C. S. Campos, and **G. A. S. Pereira**, “Hybrid mobile robot navigational strategy for efficient data collection in sparsely deployed sensor networks,” in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS’07)*, San Diego, CA, October 2007, pp. 2833–2838.
11. M. A. G. Moreira, H. N. Machado, C. F. de Castro Mendonça, and **G. A. S. Pereira**, “Mobile robot outdoor localization using planar beacons and visual improved odometry,” in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS’07)*, San Diego, CA, October 2007, pp. 2468–2473. (Acceptance rate: 52%)
12. L. C. A. Pimenta, **G. A. S. Pereira**, and R. C. Mesquita, “Fully continuous vector fields for mobile robot navigation on sequences of discrete triangular regions,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA’07)*, 2007, pp. 1992–1997. (Acceptance rate: 44%)
13. R. M. Resende, **G. A. S. Pereira**, C. A. Maia, and R. L. Carceroni, “A gestural language recognition methodology for human-robot interaction,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA’06)*, 2006, pp. 4333–4335. (Acceptance rate: 39%)
14. A. R. Fonseca, L. C. A. Pimenta, R. C. Mesquita, R. R. Saldanha, and **G. A. S. Pereira**, “Path planning for mobile robots operating in outdoor environments using map overlay and triangular decomposition,” in *Proceedings of the International Congress of Mechanical Engineering (COBEM’2005)*, Ouro Preto, Brasil, Novembro 2005.
15. L. C. A. Pimenta, A. R. Fonseca, **G. A. S. Pereira**, R. C. Mesquita, E. J. Silva, W. M. Caminhas, and M. F. M. Campos, “On computing complex navigation functions,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA’05)*, Barcelona, Spain, April 2005, pp. 3463–3468. (Acceptance rate: 45%)
16. F. Zhang, V. Kumar, and **G. A. S. Pereira**, “Necessary and sufficient conditions for localization of multiple robot platforms,” in *Proceedings of the ASME Design Engineering Technical Conferences (DETC’04)*, Salt Lake City, USA, September 28 – October 2 2004. (This paper was selected as one of tree finalists for the **The Best Conference Paper Award**.)
17. **G. A. S. Pereira**, M. B. Soares, and M. F. M. Campos, “A potential field approach for collecting data from sensor networks using mobile robots,” in *Proceedings of the IEEE/RJS International Conference on Intelligent Robots and Systems (IROS’04)*, Sendai, Japan, September 28 – October 2 2004.
18. **G. A. S. Pereira**, A. K. Das, V. Kumar, and M. F. M. Campos, “Formation control with configuration space constraints,” in *Proceedings of the IEEE/RJS International Conference on Intelligent Robots and Systems (IROS’03)*, Las Vegas, USA, October 27–31 2003, pp. 2755–2760.

19. **G. A. S. Pereira**, V. Kumar, and M. F. M. Campos, "Localization and tracking in robot networks," in *Proceedings of the International Conference on Advanced Robotics (ICAR'03)*, 2003, pp. 465–470.
20. C. Belta, **G. A. S. Pereira**, and V. Kumar, "Control of a team of car-like robots using abstractions," in *Proceedings of the 42nd IEEE Conference on Decision and Control (CDC'03)*, 2003, pp. 1520–1525.
21. B. S. Pimentel, **G. A. S. Pereira**, and M. F. M. Campos, "On the development of cooperative behavior-based mobile manipulators," in *Proceedings of the First International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'02)*, Bologna, Italy, July 2002, pp. 234–239. (Acceptance rate: 27%)
22. M. F. M. Campos, **G. A. S. Pereira**, S. R. C. Vale, A. Q. Bracarensea, G. A. Pinheiro, and M. P. Oliveira, "A mobile manipulator for installation and removal of aircraft warning spheres on aerial power transmission lines," in *Proceedings of IEEE International Conference on Robotics and Automation (ICRA'02)*, Washington, DC, May 2002, pp. 3559–3564. (Acceptance rate: 59%)
23. **G. A. S. Pereira**, B. S. Pimentel, L. Chaimowicz, and M. F. M. Campos, "Coordination of multiple mobile robots in an object carrying task using implicit communication," in *Proceedings of IEEE International Conference on Robotics and Automation (ICRA'02)*, Washington, DC, May 2002, pp. 281–286. (Acceptance rate: 59%)
24. **G. A. S. Pereira**, M. F. M. Campos, and L. A. Aguirre, "Data based dynamical model of vision observed small robots," in *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics (SMC'00)*, Nashville, Tennessee, USA, October 2000, pp. 3312–3317.
25. **G. A. S. Pereira**, M. F. M. Campos, and L. A. Aguirre, "Improved control of visually observed robotic agents based on autoregressive model prediction," in *Proceedings of IEEE/RJS International Conference on Intelligent Robots and Systems (IROS'00)*, Takamatsu, Japan, November 2000, pp. 608–614.

Peer-reviewed Brazilian conferences (most of them in Portuguese, some in English)

1. **G. A. S. Pereira**, S. Choudhury, and S. Scherer, "Nonholonomic Nonholonomic motion planning in partially unknown environments using vector fields and optimal planners," in *Anais do XXI Congresso Brasileiro de Automática (CBA'16)*, Vitória, ES, October 2016.
2. D. S. Alban-Penafiel and **G. A. S. Pereira**, "Geração de mapas para localização e navegação de um manipulador móvel usando múltiplos sensores," in *Anais do XX Congresso Brasileiro de Automática (CBA'14)*, Belo Horizonte, MG, September 2014, pp. 1–6.
3. D. A. Lima and **G. A. S. Pereira**, "Navegação segura de um carro autônomo utilizando campos vetoriais e o método da janela dinâmica," in *Anais do X Simpósio Brasileiro de Automação Inteligente (SBAI'11)*, 2011, pp. 1167–1172.
4. L. E. R. Silva, L. A. B. Torres, and **G. A. S. Pereira**, "Calibração de acelerômetros utilizando um robô manipulador industrial," in *Anais do X Simpósio Brasileiro de Automação Inteligente (SBAI'11)*, 2011, pp. 1025–1030.
5. L. G. B. Machado, M. M. Gonçalves, L. C. A. Pimenta, and **G. A. S. Pereira**, "Convergência e circulação de curvas por múltiplos robôs diferenciais," in *Anais do X Simpósio Brasileiro de Automação Inteligente (SBAI'11)*, 2011, pp. 563–568.
6. M. A. G. Moreira, E. J. R. Freitas, **G. A. S. Pereira**, L. A. B. Torres, and P. Iscold, "Modelagem e controle de um helimodelo em ambientes internos," in *Anais do XVIII Congresso Brasileiro de Automática (CBA'10)*, 2010, pp. 3218–3224.
7. M. M. Gonçalves, L. C. A. Pimenta, and **G. A. S. Pereira**, "Formação de padrões em ambientes tridimensionais com enxames de robôs móveis aéreos utilizando campos vetoriais," in *Anais do XVIII Congresso Brasileiro de Automática (CBA'10)*, 2010, pp. 5006–5013.
8. M. M. Bosque, L. C. A. Pimenta, R. C. Mesquita, **G. A. S. Pereira**, and L. Chaimowicz, "Implementação do controle de enxames de robôs utilizando a hidrodinâmica de partículas suavizadas," in *Anais do XVIII Congresso Brasileiro de Automática (CBA'10)*, 2010, pp. 1832–1839.
9. V. B. Sabbagh, E. J. R. Freitas, G. M. M. E. Castro, M. M. Santos, M. F. Baleeiro, T. M. Silva, P. Iscold, L. A. B. Torres, and **G. A. S. Pereira**, "Desenvolvimento de um sistema de controle para um carro de passeio autônomo," in *Anais do XVIII Congresso Brasileiro de Automática (CBA'10)*, 2010, pp. 928–933.

10. D. A. Lima and **G. A. S. Pereira**, “Um sistema de visão estéreo para navegação de um carro autônomo em ambientes com obstáculos,” in *Anais do XVIII Congresso Brasileiro de Automática (CBA’10)*, 2010, pp. 224–231.
11. B. C. O. Dutra and **G. A. S. Pereira**, “Orientation of rigid objects using a mobile robot,” in *Anais do XVIII Congresso Brasileiro de Automática (CBA’10)*, 2010, pp. 20–26.
12. M. A. G. Moreira, **G. A. S. Pereira**, P. Iscold, and L. A. B. Torres, “Localização de um mini-helicóptero em ambientes internos usando sensores inerciais e visão estéreo,” in *Anais do Simpósio Brasileiro de Automação Inteligente*, 2009.
13. E. J. de R. Freitas, M. N. W. Vinti, M. M. Santos, P. Iscold, L. A. B. Torres, and **G. A. S. Pereira**, “Desenvolvimento de automação embarcada para um robô móvel baseado em um carro de passeio,” in *Anais do Simpósio Brasileiro de Automação Inteligente*, 2009, pp. 1–6.
14. M. M. Santos, E. J. R. Freitas, M. N. W. Vinti, P. Iscold, L. A. B. Torres, and **G. A. S. Pereira**, “Automation and localization of a robotic car,” in *Proceedings of the 3rd Applied Robotics and Collaborative Systems Engineering Workshop (Robocontrol’08)*, 2008.
15. **G. A. S. Pereira**, P. Iscold, and L. A. B. Torres, “Estimação da atitude de aeronaves utilizando visão computacional,” in *Anais do XVII Congresso Brasileiro de Automática (CBA’08)*, 2008.
16. **G. A. S. Pereira**, D. R. Rebelo, P. Iscold, and L. A. B. Torres, “A vector field approach to guide small uavs through a sequence of waypoints,” in *Anais do XVII Congresso Brasileiro de Automática (CBA’08)*, 2008.
17. V. M. Gonçalves, C. A. Maia, and **G. A. S. Pereira**, “Navegação de robôs móveis utilizando ciclos limite determinados por meio de curvas implícitas,” in *Anais do XVII Congresso Brasileiro de Automática (CBA’08)*, 2008.
18. M. T. P. Silva, F. H. Vasconcelos, and **G. A. S. Pereira**, “Interface de rf para sensor inteligente de pressão arterial baseada em tecnologia rfid,” in *Anais do 7o Seminário Internacional de Metrologia Elétrica (VIII Semetro)*, Belo Horizonte, 2007.
19. T. T. Salis and **G. A. S. Pereira**, “Contagem automática de tarugos de aço por meio de visão computacional,” in *Anais do XI Seminário de Automação de Processos da Associação Brasileira de Metalurgia e Materiais (ABM)*. Porto Alegre: Associação Brasileira de Metalurgia e Materiais (ABM), 2007, pp. 583–595.
20. M. A. G. Moreira, H. N. Machado, C. F. de Castro Mendonça, and **G. A. S. Pereira**, “A traffic sign detector for mobile robot localization,” in *Anais do VIII Simpósio Brasileiro de Automação Inteligente (SBAI’07)*, Florianópolis, October 2007.
21. P. Iscold, G. R. C. Oliveira, A. Alves Neto, **G. A. S. Pereira**, and L. A. B. Torres, “Desenvolvimento de horizonte artificial para aviação geral baseado em sensores mems,” in *Anais V Congresso Brasileiro de Engenharia Inercial (SBEIN’07)*, Rio de Janeiro, 2007, pp. 145–150.
22. D. A. Lima, **G. A. S. Pereira**, and F. H. Vasconcelos, “Visão computacional para leitura do dispositivo mostrador de instrumentos de medição,” in *Anais do 7o Seminário Internacional de Metrologia Elétrica (VIII Semetro)*, Belo Horizonte, 2007.
23. L. C. A. Pimenta, M. L. Mendes, R. C. Mesquita, and **G. A. S. Pereira**, “Uma abordagem via simulação de fluidos em campos eletrostáticos para geração de padrões por múltiplos robôs,” in *Anais do 12o Simpósio Brasileiro de Microondas e Optoeletrônica e 7o Congresso Brasileiro de Eletromagnetismo*, Belo Horizonte, MG, 2006.
24. L. C. A. Pimenta, J. S. Corrêa, M. B. Soares, **G. A. S. Pereira**, R. C. Mesquita, and M. F. M. Campos, “Utilização de funções harmônicas na coleta de dados em redes de sensores sem fio por robôs móveis,” in *Anais do Congresso Brasileiro de Automática (CBA’06)*, 2006, pp. 1405–1410.
25. M. A. G. Moreira and **G. A. S. Pereira**, “Localização de robôs móveis a partir de marcos visuais mapeados em tempo real,” in *Anais do Congresso Brasileiro de Automática (CBA’06)*, 2006, pp. 399–404.
26. H. N. Machado and **G. A. S. Pereira**, “Medição das velocidades de um robô móvel utilizando seqüências de imagens de sua superfície de movimentação,” in *Anais do Congresso Brasileiro de Automática (CBA’06)*, 2006, pp. 1025–1030.
27. M. L. Neves and **G. A. S. Pereira**, “Localização em redes de robôs usando Álgebra intervalar,” in *Anais do VII Simpósio Brasileiro de Automação Inteligente (SBAI’05)*, São Luiz, MA, September 2005.
28. M. B. Soares, M. F. M. Campos, **G. A. S. Pereira**, and G. R. Mateus, “Planejamento de rotas de robôs autônomo em redes de sensores sem fio,” in *Anais do XV Congresso Brasileiro de Automática (CBA’04)*, Gramado, RS, September 2004.

29. L. C. A. Pimenta, **G. A. S. Pereira**, R. C. Mesquita, W. M. Caminhas, and M. F. M. Campos, “Elementos finitos na navegação de robôs móveis,” in *Anais do XV Congresso Brasileiro de Automática (CBA’04)*, Gramado, RS, September 2004.
30. **G. A. S. Pereira**, F. B. Torres, and M. F. M. Campos, “Desenvolvimento de robôs holonômicos de baixo custo para o estudo de robótica móvel,” in *Anais do XV Congresso Brasileiro de Automática (CBA’04)*, Gramado, RS, September 2004.
31. **G. A. S. Pereira**, V. Kumar, and M. F. M. Campos, “A framework for motion planning of cooperative mobile robots,” in *Anais do VI Simpósio Brasileiro de Automação Inteligente (SBAI’03)*, Bauru, SP, September 2003, pp. 846–851.
32. G. S. Santiago, **G. A. S. Pereira**, M. F. M. Campos, and L. A. Aguirre, “Partial model identification of a remotely controlled indoor blimp,” in *Anais do XIV Congresso Brasileiro de Automática (CBA’02)*, Natal, RN, Setembro 2002, pp. 2921–2926.
33. **G. A. S. Pereira**, B. S. Pimentel, and M. F. M. Campos, “A simple testbed for cooperative robotics,” in *Anais do V Simpósio Brasileiro de Automação Inteligente (SBAI’01)*, Canela, RS, November 2001.
34. **G. A. S. Pereira** and M. F. M. Campos, “Sistema robusto para estimação visual da posição de sistemas móveis a partir de marcos visuais planares,” in *Anais do V Simpósio Brasileiro de Automação Inteligente (SBAI’01)*, Canela, RS, November 2001.
35. **G. A. S. Pereira**, M. F. M. Campos, and L. A. Aguirre, “Modelo dinâmico para predição da posição e orientação micro-robôs móveis observados por visão,” in *Anais do XIII Congresso Brasileiro de Automática (CBA’00)*, Florianópolis, SC, September 2000.

Citations

GOOGLE SCHOLAR Papers: **107** Citations: **1607** H-factor: **20** Date: April 6, 2017

WEB OF SCIENCE Papers: **42** Citations: **389** H-factor: **11** Date: April 6, 2017

SCOPUS Papers: **49** Citations: **369** H-factor: **11** Date: May 20, 2016

Patent

1. Autonomous or semi-autonomous system for installation and removal of signalization spheres on aerial power transmission lines or similar. Brazilian Patent N° PI02059169, Filing date: November 2002, Publication date: January 2016.

Press Coverage

1. Autonomous Car developed at UFMG (CADU) covered by several TV networks and news papers in Brazil (TV GLOBO, SBT, TV UFMG, Jornal do Brasil, Hoje em Dia, Estado de Minas, O Tempo, Revista Encontro, Pesquisa Fapesp, Revista FAPEMIG, Radio Itatiaia) – [2009-2015]. Some videos here: <https://goo.gl/zEJkhH>
2. Interview on Robotics – Portal Terra (On-line News Paper)– 2013.
3. Interview on Jobs and Robots – Zero Hora de Porto Alegre (News Paper) – 2015.
4. Interview on Autonomous Safety Systems – Correio Braziliense (News Paper) – 2016.

Funded Projects

CURRENT PROJECTS (Average dollar quotation since 2005: US\$1.00 ≈ R\$2.50; current quotation: US\$1.00 ≈ R\$3.20)

2016-2022 **National Institute of Science and Technology for Cooperative Autonomous Systems Applied to Security and Environment.**

Role: Co-Principal Investigator

Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$7,100,000.00

2016-2019 **Robot Navigation in dynamic workspaces in the presence of uncertainties.**

Role: Principal Investigator

Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$39,600.00

2016-2018 **Localization and navigation of autonomous air vehicles flying near the ground.**
Role: Principal Investigator
Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$60,000.00

PREVIOUS PROJECTS

2015-2016 **Navigation of autonomous aerial vehicles near the ground.**
Role: Principal Investigator
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – US\$29,984.00

2013-2016 **Motion Planning, Coordination and Control of Cooperating Robots.**
Role: Principal Investigator
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$39,600.00

2013-2015 **Navigation of Cooperative Robots.**
Role: Principal Investigator
Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$48,000.00

2010-2015 **Mini-UAVs for Coverage of Areas with Minimization of Time.**
Role: Researcher
Funding: Financiadora de Estudos e Projetos (FINEP/Brazil) – R\$2,000,000.00

2012-2014 **Physical Human-Robot Interaction Using Position, Force, and Vision.**
Role: Principal Investigator
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$22,000.00

2011-2014 **Towards Robust Robotic Manufacturing.** Research project between the Federal University of Minas Gerais, University of Brasilia, and the Massachusetts Institute of Technology (MIT).
Role: Researcher
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – US\$57,000.00 – and MISTI Global Seed Funds – US\$30,000.00

2011-2013 **Navigation of Autonomous Vehicles in Outdoors Environments.**
Role: Principal Investigator
Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$48,000.00

2010-2012 **Navigation of Cooperative Robots.**
Role: Principal Investigator
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$39,600.00

2009-2012 **Boundary Coverage with Teams of Robots Using Vector Fields.**
Role: Researcher
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$30,000.00

2009-2011 **Navigation of Autonomous Vehicles in Outdoors Environments.**
Role: Principal Investigator
Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$48,000.00

2009-2011 **Development of Techniques for Kinematic and Dynamic Analysis of Vehicles.**
Role: Principal Investigator
Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$250,000.00

2007-2011 **Coordination and Control of Large Groups of Robots.** Research project between the Federal University of Minas Gerais and the University of Pennsylvania (UPENN).
Role: Researcher
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – US\$27,000.00 – and National Science Foundation (NSF/USA) – US\$5,000.00

2007-2010 **Localization and Control of Cooperative Mobile Robots.**
Role: Principal Investigator
Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$39,600.00

- 2007-2009 **Hardware and Software for Localization, Navigation and Control of Autonomous Vehicles in Outdoor Environments.**
 Role: Principal Investigator
 Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$48,000.00
- 2007-2009 **Development of Instrumentation, Navigation and Control Systems for Aircrafts.**
 Role: Researcher
 Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – R\$300,000.00
- 2007-2009 **Cooperation between Aerial and Ground Robots.**
 Role: Researcher
 Funding: National Council for Scientific and Technological Development (CNPq/Brazil) – US\$25,000.00
- 2005-2006 **Sensor Fusion for Localization of Autonomous Vehicles in Outdoor Environments.**
 Role: Principal Investigator
 Funding: Research Foundation of the State of Minas Gerais (FAPEMIG/Brazil) – R\$48,000.00

Industrial Consulting and Research Partnership

- Maxtrack Vehicle Trackers (2015)
- VMI Security Systems (2014)
- FURNAS Centrais Elétricas (2012–2014)
- CEMIG (2000–2001)(2008)

Editorial Boards

- 01/2016–present **Learning & Nonlinear Models** – Associate Editor.
- 01/2013–present **Journal of Control, Automation and Electrical Systems**, Springer – Associate Editor.
- 01/2010–12/2012 **Revista Controle & Automação** – Associate Editor.

Organization of Scientific Events

- Congresso Brasileiro de Automática (CBA), Belo Horizonte, MG, Brazil, September 2014 – Technical Committee.
- International Symposium on Experimental Robotics (ISER), Rio de Janeiro, RJ, Brazil, June 2006 – Local Committee.

Program Committees

- IEEE Latin American Robotics Symposium (LARS), 2017
- IEEE Intelligent Transportation Systems Conference (ITSC), 2017.
- Simpósio Brasileiro de Automação Inteligente (SBAI), 2017.
- IEEE Intelligent Transportation Systems Conference (ITSC), 2016.
- IEEE Latin American Robotics Symposium (LARS), 2016
- IEEE/IFIP International Workshop on Urban Mobility and Intelligent Transportation Systems (UMITS), 2016.
- Simpósio Brasileiro de Automação Inteligente (SBAI), 2015.
- IFAC Symposium on Robot Control (SYROCO), 2015.
- IEEE International Symposium on Industrial Electronics (ISIE) – Robotics & Mechatronics Track, 2015

- Simpósio Brasileiro de Automação Inteligente (SBAI), 2013.
- Congresso Brasileiro de Robótica (CBR), 2012.
- Simpósio Brasileiro de Automação Inteligente (SBAI), 2011.
- 10th International Symposium on Distributed Autonomous Robotic Systems (DARS), 2010.
- Simpósio Brasileiro de Automação Inteligente (SBAI), 2009.
- VII Seminário Internacional de Metrologia Elétrica (SEMETRO), 2007.
- Encontro de Robótica Inteligente (ENRI), 2006.

Reviews

Publons profile: <https://publons.com/author/1238388/>

- FUNDING AGENCIES: National Council for Scientific and Technological Development (CNPq/Brazil), Coordination for the Improvement of Higher Education Personnel (CAPES/Brazil).
- JOURNALS: Journal of Field Robotics, IEEE Transactions on Robotics, IEEE Robotics and Automation Letters, Sensors, IEEE Transactions on Control of Network Systems, IEEE Sensors Journal, Robotica, Automática, IEEE Intelligent Systems, Robotics and Autonomous Systems, IEEE Transactions on Instrumentation and Measurement, Pattern Analysis and Applications, Journal of the Brazilian Society of Mechanical Sciences and Engineering, Journal of Control, Automation and Electrical Systems, Revista Controle & Automação.
- CONFERENCES: IEEE International Conference on Robotics and Automation (ICRA), IEEE/RJS International Conference on Intelligent Robots and Systems (IROS), American Control Conference (ACC), International Conference on Unmanned Aircraft Systems (ICUAS), IEEE International Conference on Decision and Control (CDC), IEEE Intelligent Vehicles Symposium (IV), IEEE Intelligent Transportation Systems Conference (ITSC), International Symposium on Distributed Autonomous Robotic Systems (DARS), Congresso Brasileiro de Automática (CBA), Simpósio Brasileiro de Automação Inteligente (SBAI), Simpósio Brasileiro de Robótica (SBR).

Committees

- PHD COMMITTEES: Federal University of Minas Gerais (16 committees), University of São Paulo (3), Federal University of Rio de Janeiro (2), Federal University of Itajubá (1), Federal University of Campina Grande (1), Federal University of Rio Grande do Norte (1).
- QUALIFY AND MASTERS COMMITTEES: Federal University of Minas Gerais (26q+36m committees), University of São Paulo (3q+1m), Federal University of Rio de Janeiro (1q+1m), Federal University of Campina Grande (1q), Federal University of Rio Grande do Norte (1q), Pontifical Catholic University of Minas Gerais (2m), Federal Center for Technological Education of Minas Gerais (2m), University of Brasilia (1m), Federal University of Juiz de Fora (1m).
- GRADUATION WORK COMMITTEES: 39 committees at the Federal University of Minas Gerais.

Invited Presentations and Lectures

- IEEE Student Branch (UFMG), Belo Horizonte, MG, Brazil – October 2016.
- Brazilian Society for Automotive Engineering (AEA), São Paulo, SP, Brazil – May 2014.
- Universidade Federal do Amazonas (UFAM), Manaus, AM, Brazil – January 2014.
- Instituto Federal de Ciência e Tecnologia do Amazonas (IFAM), Manaus, AM, Brazil – May 2011.
- Universidade Federal de Juiz de Fora (UFJF), Juiz de Fora, MG, Brazil – June 2011.
- GRASP Laboratory, University of Pennsylvania (UPENN), Philadelphia, PA, USA – June 2009.

Student Advising

PH.D. STUDENTS

1. Antônio Carlos Bana Chiella - Sensor fusion for localization of air vehicles in low altitudes, expected graduation date: 2019.
2. Rafael Francisco do Santos - Robot programming by demonstration using system identification, expected graduation date: 2018.
3. Natália Cosse Batista - A Probabilistic Approach for Fusing People Detectors, 2015.
4. Luciano Cunha de Araújo Pimenta (co-supervision) - Techniques for controlling swarms of robots, 2009.

M.SC. STUDENTS

1. Henrique Nunes Machado - Obstacle avoidance for aerial vehicles, expected graduation date: 2019.
2. Elias José de Rezende Freitas - Development of an autonomous wheelchair, expected graduation date: 2017.
3. Diana Sabina Albán Penafiel - A home-helping robot, 2014.
4. Gustavo Silva Castilho de Avellar - Area coverage with groups of aerial robots in minimal time, 2014.
5. Alexandre Moares Tannus (co-supervision) - Control of a robotic wheelchair using electroencephalographic signals, 2014.
6. Gabriel Silva Ribeiro (co-supervision) - Hardware-in-the-loop simulation of Inertial Measurement Units, 2014.
7. Jullierme Emiliano Alves Dias - Longitudinal control of an autonomous car, 2013.
8. Tiago Amadeu Arruda - Hardware and software architecture for an autonomous car, 2012.
9. Mateus Mariano Gonçalves - Navigation of aerial robots swarms, 2011.
10. João Bosco Silvino Júnior - Computer vision for Forensic Ballistics, 2010.
11. Marco Aurélio Guimarães Moreira - Identification and control of an autonomous helicopter, 2010.
12. Danilo Alves de Lima - Autonomous cars navigation using vector fields and the dynamic window approach, 2010.
13. Michelle Mendes Santos (co-supervision) - Sensor fusion for localization of an autonomous car, 2009.
14. Turíbio Tanus Salis - Computer vision on the siderurgic industry, 2008.
15. Raoni Maira Resende - Human/robot interface using computer vision and discrete event systems, 2006.
16. Alexandre Ramos Fonseca (co-supervision) - Map composition for robot navigation, 2006.
17. Luciano Cunha de Araújo Pimenta - Robot navigation based on Laplace's Equation, 2005.
18. Marcelo Borghetti Soares (co-supervision) - Data extraction on wireless sensor networks using mobile robots, 2004.

UNDERGRADUATE STUDENTS

- Scientific Initiation students and laboratory interns: 45 students.
- Graduation work in Control and Automation Engineering and Electrical Engineering: 29 students.

Research experience

- Robot Motion Planning (deterministic and stochastic planners, vector fields, optimal planners)
- Aerial robotics (fixed-wing, rotorcrafts, guidance, landing, state estimation)
- Ground robotics (service robots, autonomous cars, localization)
- Cooperative Robotics (localization, manipulation, coordination, planning and control)
- Computer Vision (stereo vision, localization, visual servoing)
- Sensor Fusion (localization, path reconstruction, people detection, SLAM)
- System Identification (modeling dynamic system for prediction and control, programming by demonstration)

Development experience

Videos can be found at: <https://goo.gl/213Ew4>

AUTONOMOUS VEHICLES AND ROBOTS DEVELOPED (in collaboration with students and colleagues)

- Robotic wheelchair - Principal Investigator - 2014–2017
- Service Robot (MARIA) - Principal Investigator - 2014–2017
- Team of fixed-wings aerial vehicles - Researcher - 2010–2014
- UFMG's Autonomous Car (CADU) - Principal Investigator - 2007–2014
- Autonomous Helimodel - Principal Investigator - 2009–2010
- Lego based mobile manipulators (Manuelzão and Miguelin) - part of PhD work - 2001
- Team of 4 cooperative holonomic robots - part of PhD work - 2002
- Mobile robot for installation of warning spheres in power transmission lines - Developer of electronics and control - 2000–2001
- Indoors autonomous vehicle (SUCATA) - Engineering Graduation work - 1998
- Team of 3 robotic soccer players (Teams UAI and MIneiROSOT) - non-curricular Undergraduate activities - 1997–1998

SOFTWARE DEVELOPMENT EXPERIENCE

- Languages: C, C++, Matlab, Python, Pascal.
- Libraries and tools: Robot Operating System (ROS), The Open Motion Planning Library (OMPL), Open Source Computer Vision (OpenCV), Visual Servoing Platform (ViSP), Stage, Gazebo, Robotics Matlab Toolbox.
- Operating systems: Linux, MS Windows.
- [ROS packages maintained](#): 2

EXPERIENCE WITH COMMERCIAL ROBOTS AND SENSORS

- Aerial robotics: DJI Matrice 100 quadrirotor, Micropilot MP2028.
- Ground mobile robots: Adept Pionner 3-AT, iRobot Create, Nomad 200 and 500.
- Manipulator robot: Comau Smart 6.
- Educational robotics: Lego (EV3, NXT and RCX), MIT Handy Board.
- Laser range finders: Sick (LMS-100, LMS-200), Hokuyo (UTM-30LX, URG-04LX), Lightware SF30.
- Cameras: Point Grey (Bumblebee, Dragonfly and Firefly), MS Kinect, USB Cameras. Analog Frame Grabbers.

PARTICIPATION IN ROBOTICS COMPETITIONS

- MBZIRC - Abu Dhabi, 2017 (Mohamed Bin Zayed International Robotics Challenge) - Participated with the Carnegie Mellon Tartans Team in Challenge 1 (Landing on a Moving Platform).
- Robocup Brazil - Fortaleza, 2013 - Second place in Robocup@home category.
- Robot Soccer Brazilian Cup - São Paulo, 1998; Porto Alegre, 1999 - First place in 1999.
- Robocup/FIRA - Paris, 1998 - Participation in the very small size robot soccer category.

Courses taught

GRADUATE LEVEL

Probabilistic Robotics,
Robot Kinematics I,
Robot Navigation (*taught in English*),
Robot Navigation II - Advanced Motion Planning,
Robot Motion Planning and Control,
Image Detection and Analysis (*taught in English*),
Data Structures and Algorithms.

UNDERGRADUATE LEVEL

Robotic Manipulators,
Control of Electrical Drives Laboratory,
Electrical Machines Laboratory,
Electric Circuits,
Electric Circuits Laboratory,
Control Systems,
Digital Systems Laboratory,
Logics.

EXTENSION

Image Detection and Analysis (eight weeks),
A Ludic Introduction to Robotics (four days),
Introduction to Aerial Robotics (three days).

Languages

PORTUGUESE Native speaker.
ENGLISH Advanced level.
SPANISH Comprehends reasonably and reads well.

July 21, 2017